

Central Asian Journal of Medicine

Volume 2019 | Issue 2

Article 5

6-23-2019

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Recommended Citation

Nishonov, F.N.; Nishanov, M.F.; and Khojimetov, D.Sh. (2019) "Surgical Tactics and Choice of Pharmacotherapy for Stenosing Pyloroduodenal Ulcers," *Central Asian Journal of Medicine*: Vol. 2019 : Iss. 2 , Article 5.

Available at: <https://uzjournals.edu.uz/tma/vol2019/iss2/5>

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Surgical Tactics and Choice of Pharmacotherapy for Stenosing Pyloroduodenal Ulcers

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Article info

Published: june 2019 y

Key words: stenosing pyloroduodenal ulcer, gastrectomy, gastroduodenal anastomosis.

ABSTRACT

The examination and surgical treatment results of 223 patients with peptic ulcer complicated by pyloroduodenal stenosis who underwent various options for gastrectomy, as well as 32 patients with stenotic pyloroduodenal ulcers who underwent excision of the stenotic ulcer with plastic surgery of the pyloroduodenal zone to normalize the evacuation function of the stomach were analyzed. Due to the use of a set of measures developed by the authors before, during and after the surgery, the number of complications specific to operations on the stomach decreased to 9.75%; postoperative complications of a general nature - up to 7.3%.

Introduction

Chronic ulcer of pyloroduodenal localization in 10,0-17,0% of patients is complicated by stenosis of the stomach output part. Among other complications of ulcerous disease, pyloroduodenal stenosis is an indication for surgical treatment in 45-47% [1,5,8,15,19,20]. Despite the high frequency of this complication, issues of choosing the surgery method based on clinical and laboratory studies of the pathological duodenogastric reflux parameters and its role in the development of pathological syndromes have not been studied enough. [3,6,8,10,14,18].

The choice of the operation method for cicatricial ulcer pyloroduodenal stenosis has become a subject of discussion in connection with the widespread use of organ-saving surgeries. The introduction of gentle methods using modern drug anti-ulcer therapy into the wide surgical practice can significantly improve the results of surgical treatment of ulcerous pyloroduodenal stenosis [2,4,12]. However, the fear of prolonged postoperative atony development of the already stretched the stomach wall by ulcerative stenosis is a reason of rejection from vagotomy in favor of gastrectomy [13,17]. Criteria for choosing the method of operation in patients with pyloroduodenal stenosis are currently not clearly defined [7,9,11,16].

Aim of the study is to improve surgical treatment results of patients with stenotic pyloroduodenal ulcers.

Material and methods

Our study is based on an analysis of the examination and surgical treatment results of 223 patients with peptic ulcer complicated by pyloroduodenal stenosis who underwent various options for gastrectomy, as well as 32 patients with stenotic pyloroduodenal

ulcers who underwent excision of the stenotic ulcer with plastic surgery of the pyloroduodenal zone to normalize the evacuation function of the stomach.

The operated patients were divided into 2 groups.

The control group consisted of 223 (100%) patients. 141 (63.23%) patients with peptic ulcer complicated by pyloroduodenal stenosis in 2007-2011. Were performed improved types of gastrectomy, gastroduodenoanastomoses (GDA) and gastrojejunoanastomoses (GEA), ulcer excision with pyloroduodenoplastic surgery (in 6 patients).

The main group included 82 (36.77%) patients with stenotic pyloroduodenal ulcers (PDU) who in 2012-2017 undergone modified types of economical gastrectomy. GDA and GEA were performed in 55 patients; stenotic PDUs with PDP were excised in 26 patients. GEA with Brown anastomosis was performed in 1 patient of old age with a serious concomitant disease that required a quick end of the surgery. In the main group, unlike the control group, in order to reduce aggressive factors (acid, pepsin, Hp), even before the operation, they additionally performed "triple" or "quadrotherapy", continuing pharmacotherapy in the postoperative period in patients undergoing organ-saving surgeries. Gastrointestinal probing was used for decompression of the anastomosis and pyloroduodenoplasty area, for gastrointestinal "lavage", as well as for early enteral nutrition. There were no significant differences by sex, age and duration of the disease in patients of the compared groups. The distribution of patients with stenosing PDUs by gender and age is presented in Table 1. Thus, the largest number of patients 104 (46,6%) was in the second age group, and 31 (13,9%) patients were in the first age group, 53 (23,7%) were in the third age group and only 35 (15,7%) in the fourth age group. There were 147 (65.9%) men and 76 (34.1%) women. The ratio of men to women was 2: 1.

Table 1

Distribution of patients by gender and age

Gender	Age (years)									
	15-24		25-45		46-59		60-74		Total	
	abs	%	abs	%	abs	%	abs	%	abs	%
Men	20	8,97	72	32,3	31	13,9	24	10,7	147	65,9
Women	11	4,94	32	14,3	22	9,8	11	4,9	76	34,1
Total	31	13,9	104	46,6	53	23,7	35	15,7	223	100

The shortest ulcerative history was 4 months (1 patient), and the longest - 36 years. In most patients the duration of the disease exceeded 6 years (Tab. 2).

Table 2

Distribution of patients by disease duration

Duration of ulcerative history	Patients quantity (abs. and %)	
	n	%
From 1 to 5 years	24	10,76
From 6 to 10 years	67	30,04
From 11 to 15 years	62	27,80
From 16 to 20 years	43	19,28
From 21 to 25 years	15	6,72
From 26 and more	22	9,86
Total:	223	100

Most patients indicated a long history of peptic ulcer: 172 (77.13%) suffered from ulcer from 6 to 20 years, 37 (16.59%)- from 21 years and more, and only 24 (10.76%) were less than 5 years. The purpose of peptic ulcer disease surgical treatment complicated by stenosis of the stomach output part is to eliminate obstruction, to create conditions for the restoration of motor-evacuation function of the stomach and a radical cure from peptic ulcer. An individual approach to indications for surgery and the choice of the most reasonable method of surgical intervention for each specific observation depends on many factors: the location of the ulcer and the nature of its complications, indicators of gastric secretion and gastric motor-evacuation function, age and severity of concomitant diseases, the nature of the combined diseases and operational findings, among which one of the leading places is the presence of stenosis stages. The solution of these issues is impossible without creating a clear classification of ulcerative stenosis, which would reflect the clinical, morphological and pathophysiological aspects of the disease, characterizing it as a complication of peptic ulcer. The modern capabilities of clinical-radiological and endoscopic studies, the improvement of methods for studying the secretory and motor-evacuation functions of the stomach have once again confirmed the continuity of the widespread classification of stenosis by three degrees of severity: compensated, subcompensated and decompensated. The distribution of patients according to the severity of stenosis is presented in table 3.

Table 3

The distribution of patients with PDU according to the degree of the stomach output part stenosis

Stenosis degree	Patients group (abs. and %)	
	n	%
Compensated	78	34,97
Sub-compensated	102	45,73
Decompensated	43	19,28
Total:	223	100

The table shows that in patients with peptic ulcer, the localization of ulcers of the pyloroduodenal department was often complicated by compensated and sub-compensated stenosis (180; 80.72%), decompensated stenosis was detected in 43 (19.28%) cases. The clinical picture of inflammatory stenosis (in 18 patients - 18.38%) is determined by an ulcer of the pyloric-bulbar part in the acute stage with characteristic inflammatory infiltrate and edema of periulcerous tissues, narrowing the lumen of the pyloric canal which causes a violation of evacuation from the stomach. The clinical picture of cicatricial and ulcerative stenosis (71.74% in 160 patients) is also determined by the presence of an ulcer with inflammatory changes in the tissues around it, but already against the background of a more or less evident cicatricial deformity of the stomach output part. In cicatricial stenosis (in 22 patients - 9.86%) ulcer healing does not improve motor-evacuation function of the stomach. Since cicatricial deformation of the tissues of the pyloric bulbar department, being a mechanical obstacle for normal evacuation leads to a sharp deterioration of the stomach motor function. 176 of 223 patients with PDU complicated by stenosis were performed various options gastrectomy, mainly by applying gastroduodenoanastomosis (in 150 - 85.22% of patients). In 32 patients, stenotic ulcers with PDP were excised, and in 5 patients gastroenteroanastomosis with Brown anastomosis was applied. The types of surgeries are presented in Table 4.

Table 4

Performed operations in patients of compared group with stenosing pyloroduodenal ulcers

Methods of operations	Groups of operated patients			
	Control		Main	
	Abs.	%	Abs.	%
Gastrectomy by B-I Haberer	44	31,2	22	26,84
Gastrectomy by B-I withTLTGDA	20	14,18	6	7,31
Gastrectomy by B-I withTLOGDA	42	29,78	20	24,39
Gastrectomy by B-II Hoffmeister-Finstrer	17	12,05	6	7,31
Gastrectomy by Roux-Ibadov	6	4,25	1	1,22
Gastrectomy by B-II Balfour	2	1,42	-	-
Ulcer excision with PDP according to the methodology of the clinic (MC)	6	4,25	26	31,70
Gastroenteroanastomosis	4	2,83	1	1,23
Total:	141	100	82	100

Note: *TLTGDA*- terminolateral transverse gastroduodenoanastomosis, *TLOGDA*-terminolateral oblique gastroduodenoanastomosis

It must be underlined that gastrectomy begins with the preparation of the stomach stump by our improved method with small omentum excision and removal of no more than $\frac{1}{2}$ part of the stomach, by the application of single-row sutures. Excision of a small omentum with saving gastrectomy, Billroth - I - Haberer GDA was performed in 66 patients with peptic ulcer complicated by pyloric stenosis, after antiulcer pharmacotherapy in the absence of ulcer penetration and sharp inflammatory infiltration on the posterior wall of the duodenal bulb, which could obstruct the direct gastroduodenal anastomosis by Haberer.

A surgery of choice in case of a stenosing difficult pyloroduodenal ulcer can be considered a saving gastrectomy with small omentum excision and the imposition of TLTGDA (in 26 patients) or TLOGDA (in 62 patients). When closing a difficult duodenal stump technical difficulties arise with large, "kissing" ulcers that penetrate the head of pancreas. The most rational method in such cases is the mobilization of the duodenum with the reservation of the ulcer base in place (ectroduodenization of the ulcer). If it is impossible to apply GDA, the stomach stump prepared by us is connected with the initial part of the jejunum (the Billroth-II principle in the modification of the Hoffmeister-Finster). We used this approach in 23 patients. When gastrojejunoduodenal anastomosis was applied, single-row sero-muscular-submucosal sutures were used and a nasogastrojejunoduodenal probe was introduced to decompress the GEA area and duodenal stump. The development of pathogenetically based blockers of aggressive factors in gastric juice (proton pump inhibitors, H₂ receptor inhibitors) and Hp eradication contributed to the introduction of organ-saving stomach operations not only in emergency surgery, but also in planned surgery on the stomach due to peptic ulcer. As it can be seen from table 5, the vast majority (26) of patients in the main group, in patients with compensated and subcompensated stenosis were performed an excision of stenosing PDUs with pyloroduodenoplasty.

Results and discussion

In the postoperative period early complications were observed in 33 (23.40%) patients of the control group, including those associated with stomach surgery– in 20 (14.18%) cases, and general ones – in 13 (9.22%) patients. Duodenal stump stitches failure occurred in 3 (2.12%) patients; the obliterated form developed in 2 patients and acute form – in 1 case. On the relaparotomy of this patient the duodenal stump was sutured, drainage tubes for active aspiration were summed up. However, he died due to continued peritonitis. Anastomosis failure occurred in 1 patient. In relaparotomy the defect was sutured, he recovered. Stomach evacuation function disorder occurred in 8 (5.67%) patients. Bleeding occurred in 2 (1.41%) cases. These patients recovered as a result of enhanced conservative therapy, including endoscopic measures. Two more patients died: one due to peritonitis that arose as a complication of acute destructive pancreatitis, and the other from acute myocardial infarction. The number of early postoperative complications in the compared groups is presented in table 5. In the first period patients were treated according to traditional management methods. Patients were prepared for surgery in a hospital for 2-3 days. During this period, comprehensive antiulcer therapy was carried out, impaired functions of vital organs were corrected, and the body's reserves were replenished by intravenous infusions of salt and protein solutions, the prescription of drugs normalizing metabolic processes. The contents were evacuated from the stomach stump passively, through a nasogastric tube which was installed temporarily for 2-3 days. In the postoperative period, all patients received adequate antibiotic and infusion therapy. The mean quantity of bed-days made up 10,2 days.

Table 5

Characterization of early postoperative complications in the compared groups

Complications of early postoperative period	Complications quantity in the compared groups			
	Control		Main	
	Abs.	%	Abs.	%
I. Specific				
- duodenal stump failure	3(1)	2,12	2	2,43
- GDA failure	1	0,7	-	-
- anastomosis	8	5,67	2	2,43
- pancreatitis	1(1)	0,7	1	1,22
- peritonitis	5	3,54	2	2,43
- bleeding	2	1,41	1	1,22
Total:	20(2)	14,18	8	9,75
II. General:				
- bronchopulmonary	4	2,83	3	3,66
- cardiovascular diseases	3(1)	2,12	2	2,43
- infiltrates	4	2,83	1	1,22
- wound suppuration	2	1,41	-	-
Total:	13(1)	9,22	6	7,31
Total:	33(3)	23,40	14	17,07

The choice of surgery method has undergone significant changes. Since 2000, especially since 2012, excision of stenotic ulcers with PDP (in 26 - 31.7% of patients)

began to be used more often. Early enteral nutrition was performed in patients of the main group in the postoperative period. Hp eradication was performed in patients underwent gastrectomy, GDA and GEA. Patients who underwent excision of stenosing ulcers with PDP received PPI and H₂ receptor blockers + Hp eradication (triple or quadrotherapy). As a result of conducted measures in the pre-, on-time and in the postoperative period improved results of operations in the main group of patients were obtained: complications specific to surgeries on the stomach decreased to 9.75%; postoperative complications of a general nature - up to 7.31%; all patients recovered, i.e. mortality did not occur. The average hospital stay of patients made up 9,2 days.

Conclusion

Thus, improved methods of saving gastrectomy with excision of the small omentum, predominant completion by application of gastroduodenal anastomosis leads to a decrease in the aggressiveness of gastric juice peptic factors and to normalization of the stomach evacuation function, promotes the natural passage of food through the digestive tract, and the rapid normalization of the stomach and duodenum disturbed functions. The introduction of stenotic ulcers excision with plastic surgery into clinical practice against the background of blockers of gastric juice aggressive factors and Hp eradication leads to a sharp improvement in the surgical treatment results of peptic ulcer complicated forms in general and with stenotic PDU in particular.

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